# Canadian and International Experts Weigh In: An Annotated List of AI-Related Resources for College and University Students with and Without Disabilities

## Adaptech Research Network, Montreal, Canada

## <http://www.adaptech.org>

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On May 1, 2020 the Adaptech Research Network held two Artificial Intelligence Advisory Board meetings via Zoom. Participants from Canada, Germany, Israel, the United Kingdom, and the USA shared AI-related apps and devices as well as projects and articles. The Adaptech team curated all of these and prepared an annotated list. The list is provided below under the headings “Apps and Devices” and “Projects and Other Resources.”

Artificial Intelligence Advisory Board participants were (in alphabetical order of first name)**:** Alex Lussier, Alice Havel, Anick Legault, Björn Fisseler, Catherine Fichten, Christian Généreux, Christine Vo, Dana Kaspi-Tsahor, David Benrimoh, Dorit Olenik-Shemesh, Eva Libman, Hadi Rangin, Isabel Korn, Jennison Asuncion, Jillian Budd, Jutta Treviranus, Laura King, Loubna Bennabou, Maegan Harvison, Markus Deimann, Mary Jorgensen, Natalie Martiniello, Rafael Scapin, Rajesh Malik, Ray Bourgeois, René Dallaire, Rhonda Amsel, Rick Schmid, Roch Ducharme, Rosie Arcuri, Sheryl Burgstahler, Sonia Israel, Sonja Washer, Susie Wileman, Tali Heiman, Tamara Vandersluis, Tim Coughlan, and Vince Maggiore.

## Apps and Devices

* AIDA ([aida url](https://www.mindtools.com/pages/article/AIDA.htm%29)) is an online resource to improve student writing.
* Aira ([aira url](https://aira.io/aira-about-us)) combines AI with a sighted assistant to help guide users with a visual impairment.
* ALLY ([ALLY url](https://ally.ac)) can determine how accessible a document is and help professors improve the accessibility of their courses.
* Amazon Alexa ([Amazon Alexa url](https://apps.apple.com/app/id944011620/)) is a virtual assistant for Amazon Echo devices and some Android devices.
* Antidote ([Antidote url](https://www.antidote.info/en)) is a linguistic revision tool that uses AI and is helpful for students with learning disabilities.
* assist-Mi ([assist-Mi url](https://www.assist-mi.com)) is an app that connects service providers and caregivers with the person with a disability.
* Auticon ([Auticon url](https://auticon.ca/)) is a website that helps students with autism spectrum disorders find a job in the technology field.
* AXS Map ([AXS Map url](https://www.axsmap.com/)) is a free AI-enabled application that helps individuals find ramps and wheelchair accessible bathrooms.
* BlindSquare ([BlindSquare url](https://www.blindsquare.com/about/)) is an AI-enabled GPS application for users with visual impairments.
* Brain In Hand ([Brain in Hand url](https://braininhand.co.uk/)) is an AI-enabled application that helps individuals manage difficult situations, cope with anxiety, and provides reminders.
* CamFind ([CamFind url](https://apps.apple.com/ca/app/camfind/id595857716)) The individual takes a picture of an object, the application then provides a description of the image.
* DeepL ([DeepL url](https://www.deepl.com/home)) is an AI-enabled translator that can translate entire PowerPoints without effecting the formatting of the PowerPoint.
* Dot Watch ([Dot Watch url](https://www.dotincorp.com)) is a wearable device that uses AI to translate text into braille.
* Dragon Naturally Speaking ([Dragon Naturally Speaking url](https://www.nuance.com/dragon.html)) is a speech recognition software that transcribes speech into words. Dragon Anywhere ([Dragon Anywhere url](https://www.nuance.com/dragon/dragon-anywhere.html)) is the dictation and text-to-speech app for iOS and Android.
* Empower Me ([Empower Me url](https://www.businesswire.com/news/home/20171107006113/en/Brain-Power-Releases-Augmented-Reality-Smartglasses-People)) is a digital coach that runs on Google Glass, to empower children and adults with autism to teach themselves social and cognitive skills.
* EMPRIZE ([EMPRIZE url](https://xprize.org/prizes/artificial-intelligence/teams/emprize)) is a team of students, faculty, and staff associated with the Georgia Institute of Technology's Design & Intelligence Laboratory. The team developed four novel and intertwined AI technologies:
	+ VERA, a virtual experimentation research assistant for supporting inquiry-based learning of scientific knowledge;
	+ Jill Watson Q&A, a virtual teaching assistant for answering questions based on educational documents including VERA’s user reference guide;
	+ Jill Watson SA, a virtual social agent that promotes online interactions, and
	+ Agent Smith that helps generate a Jill Watson Q&A agent for new documents such as class syllabi.
* FlickType ([FlickType url](http://www.flicktype.com/)) is an AI-based adaptive on-screen keyboard. The application tries to predict what the word should be based on stored data of words used in the past.
* Google Assistant ([Google Assistant url)](https://assistant.google.com/) is a virtual assistant AI that can be used on smartphones and smart home devices. It uses voice commands in order to answer questions and perform actions based on the user’s requests.
* Google Home ([Google Home url](https://play.google.com/store/apps/details?id=com.google.android.apps.chromecast.app)) is a voice assistant AI that uses AI-enabled features on the user’s smartphone or Google Home device.
* Google Maps ([Google Maps url](https://maps.google.com/)) is a mapping service that provides imagery, photography, street maps, real-time traffic conditions, and route planning. It uses AI-based features to send specific reminders based on your location at a specific time and departure points.
* Google Slides ([Google Slides url](https://blog.google/outreach-initiatives/accessibility/whats-you-say-present-captions-google-slides/)) provides real-time closed captions.
* Google Translate ([Google Translate url](https://translate.google.com/)) is an AI-enabled translator that can translate short segments of text, or entire documents.
* IBM Watson Assistant ([IBM Watson Assistant url](https://www.ibm.com/ca-en/marketplace/watson-assistant)) enables you to create an application that understands natural-language and responds to customers in human-like conversation in multiple languages.
* If This Then That (IFTTT) ([IFTT url](https://ifttt.com/)) is the free way to get all your apps and devices talking to each other.
* Just Press Record ([Just Press Record url](https://www.openplanetsoftware.com/just-press-record/)) is an AI-enabled mobile audio recorder that allows recording, transcription, and iCloud syncing to all ones devices with one tap.
* Microsoft Math ([Microsoft Math url](https://math.microsoft.com/)) is an AI-based application that can solve complex math problems.
* Microsoft Seeing AI ([Microsoft Seeing AI url](https://www.microsoft.com/en-us/ai/seeing-ai)) is an AI-enabled application that helps recognize objects in one’s physical environment and can read aloud what is written on documents and currency.
* Microsoft Soundscape ([Microsoft Soundscape url](https://www.microsoft.com/en-us/research/product/soundscape/)) is a free GPS application that uses AI to help people with visual impairments navigate physical environments.
* Microsoft Teams ([Microsoft Teams url](https://www.microsoft.com/en-ca/microsoft-365/microsoft-teams/group-chat-software)) is a communication and collaboration platform for workplace chat, video meetings, file storage, and application integration.
* Microsoft Translator ([Microsoft Translator url](https://play.google.com/store/apps/details?id=com.microsoft.translator)) is an AI-enabled translation application that translates texts into over 60 languages.
* My Medic Watch ([My Medic Watch url](https://www.mymedicwatch.com/)) can detect when a seizure occurs, send a notification, sends a GPS location to chosen individuals best suited to help.
* Nearby Explorer Online ([Nearby Explorer Online url](https://play.google.com/store/apps/details?id=org.aph.nearbyonline)) is a free GPS application for students who are blind that helps them navigate their physical environment.
* Office Lens ([Office Lens url](https://www.microsoft.com/en-ca/p/office-lens/9wzdncrfj3t8?activetab=pivot:overviewtab)) is an AI-enabled application that makes pictures of whiteboards and documents readable.
* OrCam MyEye 2 ([OrCam MyEye 2 url](https://www.orcam.com/en/myeye2/)) is a wearable device that is Bluetooth1 and AI-enabled – completely offline - that takes a picture of an individual’s surroundings and transmits the information audibly enabling real-time communication while ensuring data security.
* Otter ([Otter url](https://otter.ai/login)) is an AI-enabled technology that helps with note taking by providing automatic live transcription of lectures.
* QTrobot ([QTrobot url](http://luxai.com/qtrobot-for-autism/)) is an expressive and engaging robot designed to increase the efficiency of education by encouraging an active and engaged interaction and making it simple to attract children’s attention to teach new life skills.
* Quizlet ([Quizlet url](https://quizlet.com/)) is an AI-enabled application that helps students learn using flashcards across diverse disciplines.
* SeizAlarm ([SeizAlarm url](http://seizalarm.com)) is an iPhone and Apple Watch application that automatically alerts emergency contacts when an individual experiences seizure like motions and provides their location.
* SensusAccess ([SensusAccess url](https://sensusaccess.com)) can automatically convert documents into a range of alternate media including audio books, e-books, and digital braille.
* Siri ([Siri url](https://www.apple.com/ca/siri/)) is a virtual assistance AI that is part of the iOS branch of operating systems. It uses voice commands to answer questions and perform actions based on the user’s requests.
* SmartWatch Inspyre ([SmartWatch Inspyre url](https://smart-monitor.com/about-smartwatch-inspyre-by-smart-monitor/)) detects repetitive shaking motion and signals the user’s device to send a text and phone call alert to whomever the user designates as an emergency contact.
* Sonic Hearing Aids ([Sonic Hearing Aids url](https://www.sonici.com/hearing-solutions/hearing-aids)), which are Bluetooth-enabled and uses AI, helps the individual understand what the students are saying and helps them communicate with their students.
* SwiftKey ([SwiftKey url](http://www.microsoft.com/en-us/swiftkey?rtc=1&activetab=pivot_1%3Aprimaryr2)) is an AI-enabled keyboard application that learns and adapts to match the user’s unique way of typing.
* Uber ([Uber url](https://www.uber.com/)) uses AI-enabled algorithms to remember where you would most likely want to go, and your favorite restaurants based on your current location.
* UNI ([UNI url](https://www.indiegogo.com/projects/motionsavvy-uni-1st-sign-language-to-voice-system#/)) is an AI-enabled device that converts sign language to speech and speech to sign language
* Voice Dream Scanner ([Voice Dream Scanner url](https://apps.apple.com/ca/app/voice-dream-scanner/id1446737725)) is an optical character recognition (OCR) applications; it even works well in dark places and in poor lighting. The application has built in text-to-speech functionality.
* Voiceitt ([Voiceitt url](http://www.voiceitt.com/)) is an AI-enabled application that understands ‘non-standard speech’ resulting from acquired, or congenital conditions (formerly called TalkKit).
* Widex Evoke ([Widex Evoke url](https://www.widex.ca/en-ca/hearing-aids/evoke-smart-hearing-aids)) are smart hearing aids that learn from an individual’s hearing experiences.
* Woebot ([Woebot url](https://woebot.io)) is an AI-enabled application that helps provide cognitive behavioral therapy to help students cope with stress and personal problems.
* Zoom ([Zoom url](https://zoom.us/)) is a video and chat conference service.

## Projects and Other Resources

* A list of resources and projects about the use of artificial intelligence and mobile technologies in education (<https://library.educause.edu/search#?publicationandcollection_search=EDUCAUSE%20Center%20for%20Analysis%20and%20Research%20(ECAR)>)
* A study about how students use online tools to facilitate their academic success (<https://library.educause.edu/resources/2019/10/2019-study-of-undergraduate-students-and-information-technology>)
* A study that examines technological investments institutions will spend the most time implementing, planning, and tracking in 2020, as well as the related trends that could influence institutional IT strategy (<https://library.educause.edu/resources/2020/1/higher-educations-2020-trend-watch-and-top-10-strategic-technologies>)
* The website of a community-driven project (<https://wecount.inclusivedesign.ca/>) to address the inherent bias against small minorities and outliers in artificial intelligence and data analytics. Disability often places you at the margins of a data set. We Count addresses this bias by making sure people with disabilities can participate in shaping data science, addressing data gaps and biases, co-designing protections against data abuse and misuse, and co-creating more equitable decision supports.
* An article (<https://dl.acm.org/doi/abs/10.1145/3362077.3362086>) that examines how artificial intelligence can perpetuate the discrimination of individuals with disabilities. The article, also, discusses strategies for supporting fairness in the context of disability throughout the AI development lifecycle. The article suggests that people with disabilities should be included when sourcing data to build models, and in testing, to create a more inclusive and robust system.
* An article (<https://medium.com/datadriveninvestor/sidewalk-toronto-and-why-smarter-is-not-better-b233058d01c8>) addressing concerns about what smart systems do with people that deviate from the norm or average. Sometimes inputting many data about average behavior can lead smart systems to react erroneously to behaviour that deviates from the norm. The article, also, addresses the issue about the failure of privacy policies to protect the identity of individuals with disabilities.
* An article (<https://www.technologyreview.com/2019/08/02/131198/china-squirrel-has-started-a-grand-experiment-in-ai-education-it-could-reshape-how-the/>) about the use of smart tutors in China. The article addresses the limitations of smart tutors, which require the intervention of teachers to answer questions. There are also, privacy concerns regarding the mass amounts of data that inform the smart tutoring systems, which may be tenuous in western countries.
* A report of Sidewalk Labs Digital Innovation Appendix (<https://quaysideto.ca/wp-content/uploads/2020/02/DSAP-Supplemental-Report-on-Sidewalk-Labs-Digital-Innovation-Appendix-DIA-Appendices-FINAL.pdf>).
* A talk (<https://www.youtube.com/watch?v=OAXmCAqZqRk>) that address concerns about what smart systems do with people that deviate from the norm or average.
* An article ([https://medium.com/@jutta.trevira/its-time-to-drop-darwinism-and-listen-to-darwin-and-his-successors-on-human-evolution-19239068e8dc](https://medium.com/%40jutta.trevira/its-time-to-drop-darwinism-and-listen-to-darwin-and-his-successors-on-human-evolution-19239068e8dc)) about the need to include people with different struggles in the design world. Rather than sacrificing the fragile, as suggested by Darwinism, it is important to respect and include people who are ‘fragile’ to create a kinder, and more generous world.
* An article (<https://www.cnbc.com/2018/12/14/ai-bias-how-to-fight-prejudice-in-artificial-intelligence.html>) about how human biases can filter into AI systems and algorithms. However, having access to large diverse data sets helps to train algorithms to maintain the principle of fairness.
* The website for the ADMINS project (<https://iet.open.ac.uk/projects/admins>) that will create a chatbot assistant that can enable more efficient and effective access to support for people with disabilities around the world.
* An interview with Jennison (<https://the1a.org/segments/designing-our-world-accessibility-in-tech/>) about the accessibility, and usability of smart technologies for individuals with disabilities.
* An article (<https://www.ibm.com/blogs/watson/2017/08/bolton-college-uses-ibm-watson-ai-to-build-virtual-assistant-that-enhances-teaching-learning-and-assessment/>) about how Bolton College used IBM Watson to build a virtual assistant ‘ADA’ that enhances teaching, learning, and information access. The virtual assistant can respond to questions across multiple domains.
* A link to Vincent’s LinkedIn profile (<https://www.linkedin.com/in/vincent-maggiore-499a60197/?originalSubdomain=ca>) where he describes his IBM Watson AI Virtual Assistant called "IAMI"
* A resource from DO-IT (<https://www.washington.edu/doit/accessible-cyberlearning-community-report>) in which it is recommended that instructors use inclusive digital tools in their courses, that researchers address accessibility issues in all stages of their work, and that funding agencies require their funded cyberlearning projects to do the same.
* An article (<https://datafloq.com/read/how-wearable-technology-help-people-disabilities/3254>) about how AI-enabled wearables can help people with disabilities. It names and describes five wearables that can be helpful.